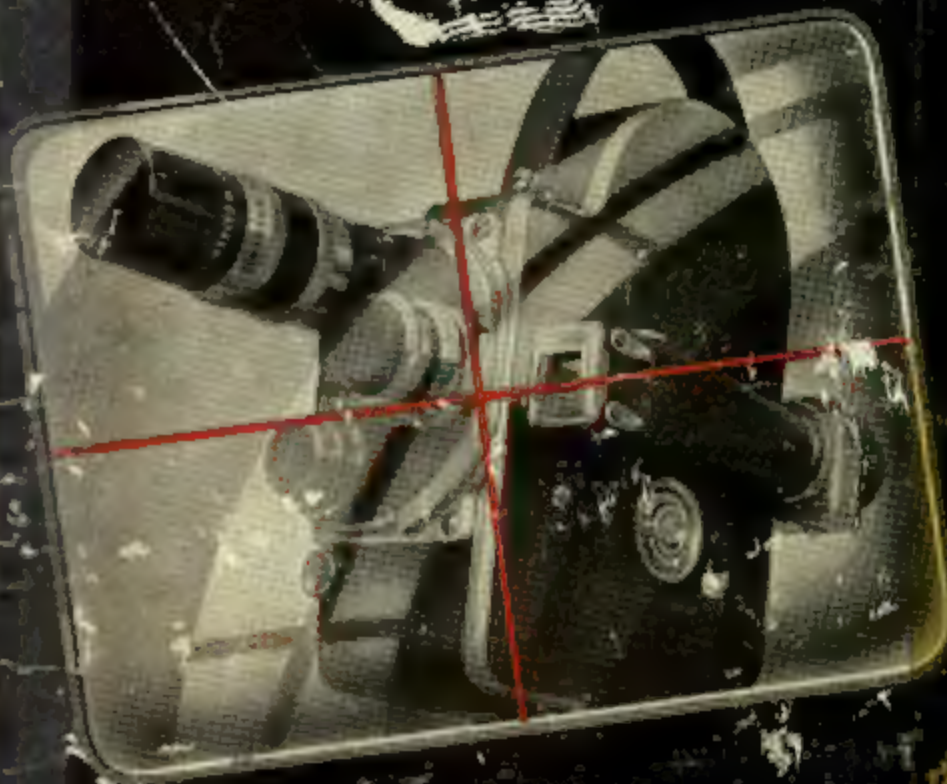




CH-CHUX SU-100

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PAILLARD 
 **BOLEX**
CAMERA H9-H15
H8

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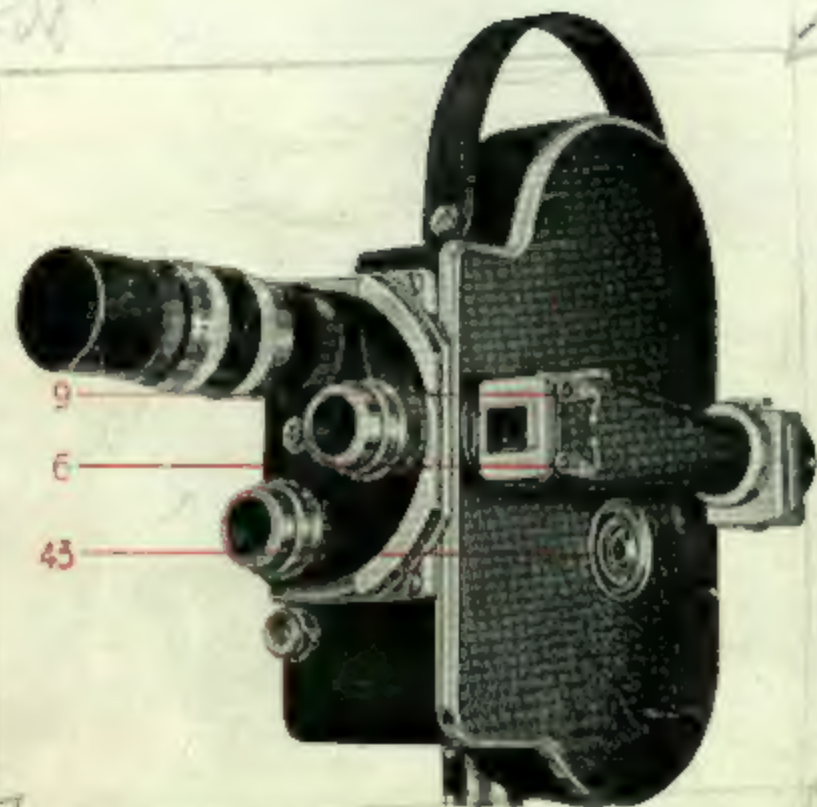


Fig. 8.

Instructions for Use

of PAILLARD Model H Cameras

Model Designation :

Each model H camera has engraved on the front of the viewfinder the size of film for which the camera is intended : H 16 for 16 mm films and H 8 for 8 mm films double run.

Equipment :

Each model H camera is supplied with at least one lens and the following accessories :

- 1 rewinding handle 25 or winding key 3.
- 1 handcrank.
- 1 length of film (approx. $1\frac{1}{2}$ ft.) intended for practice with the automatic loading device.

H 16 cameras :

- 2 empty take-up spools, one of 50 ft. and the other of 100 ft. capacity.

H 8 cameras :

- 3 empty take-up spools (for 25 ft., 50 ft. and 100 ft.). The spools for 8 mm double run differ from those for 16 mm in that they have different holes for the spool spindles and are marked I and II in white figures on the flange.

Preliminary directions :

1. Read carefully all instructions relating to the use of the apparatus.
2. Before loading with a spool, get acquainted with the various controls and practise with the automatic loading device by means of the length of film supplied.



Fig. 1

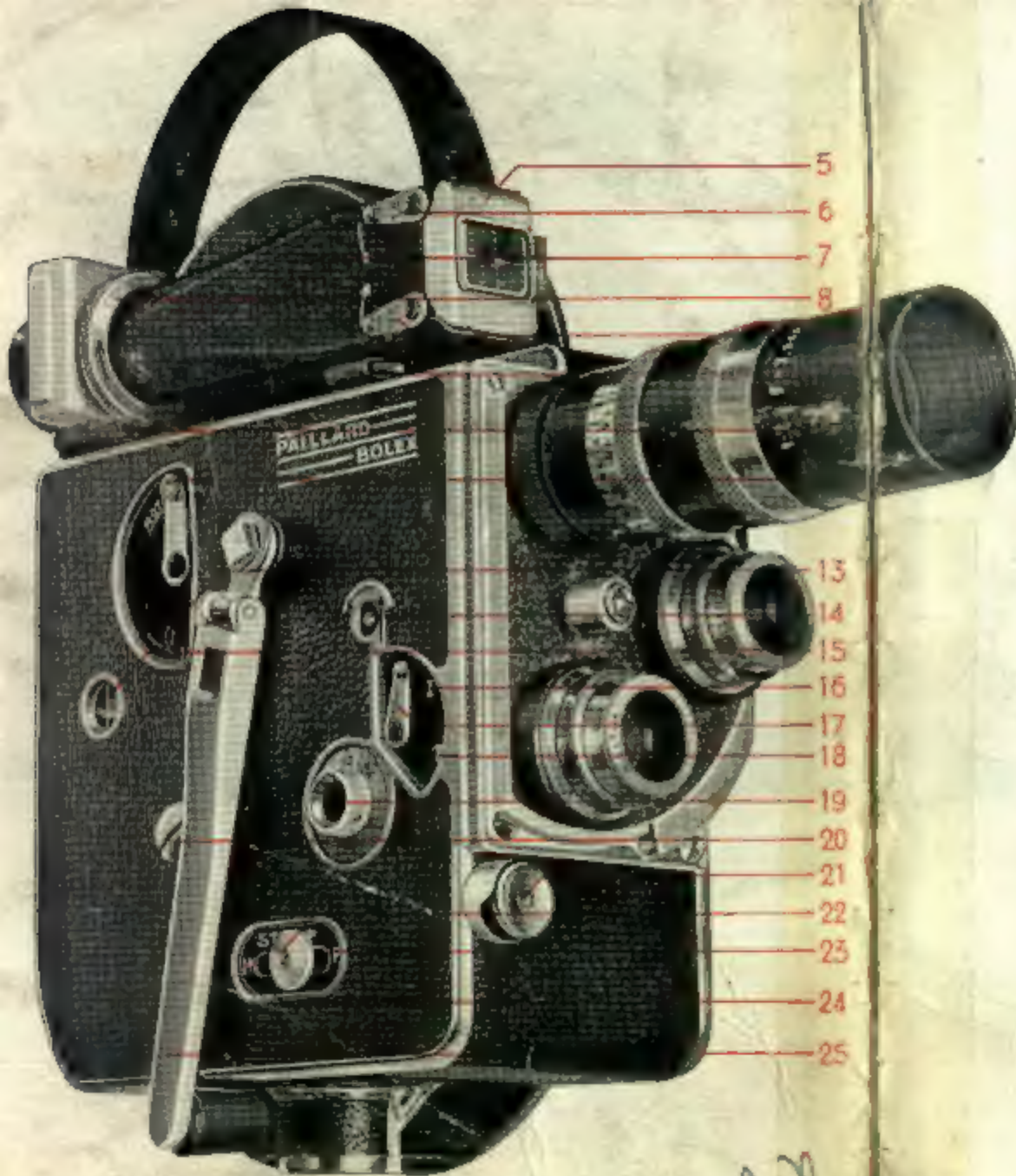


Fig. 2.



Fig. 3.

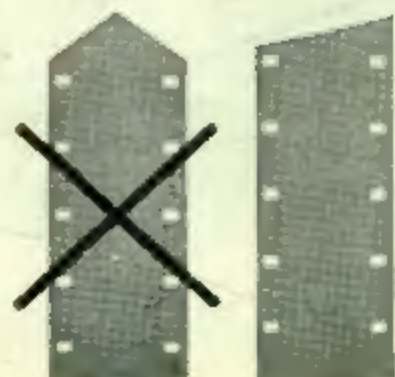


Fig. 4.

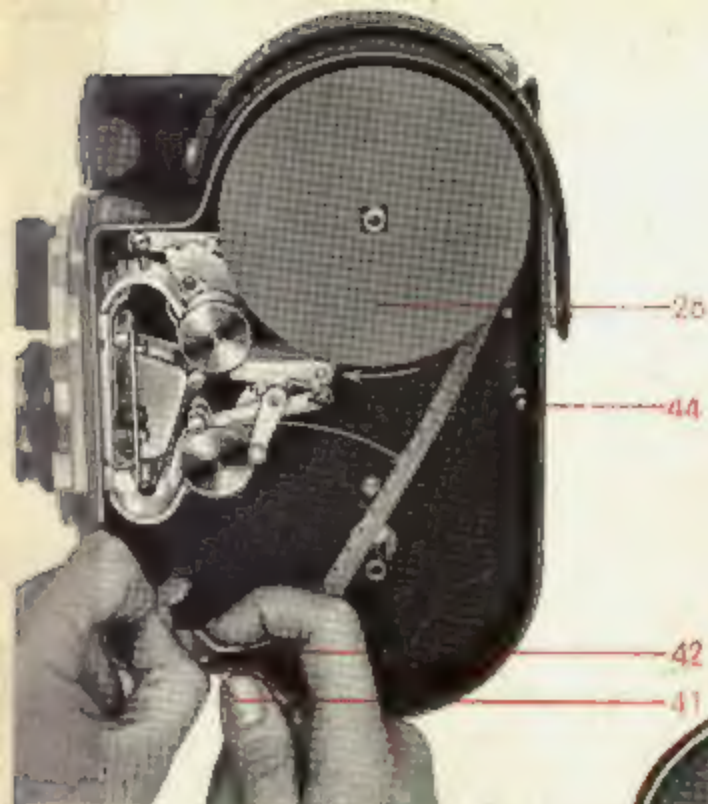


Fig. 8

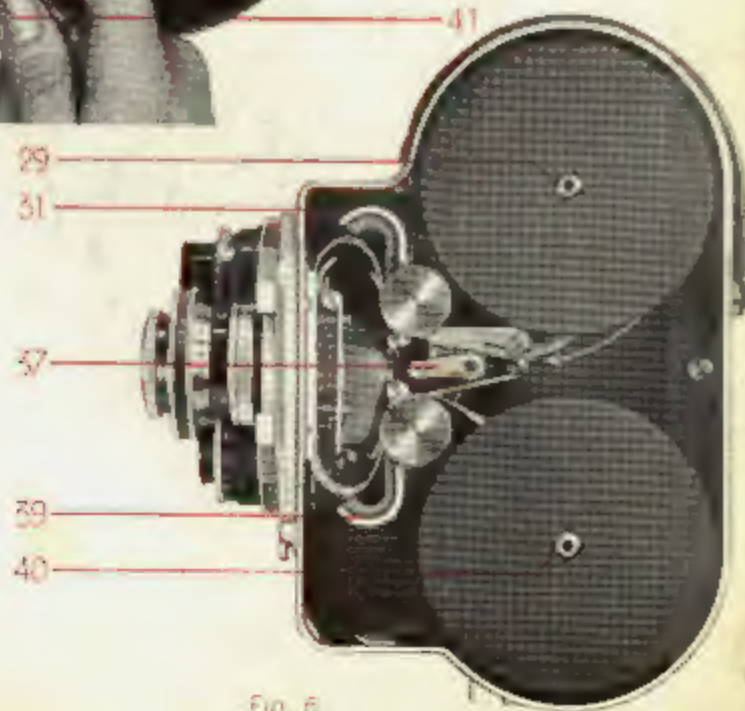


Fig. 6

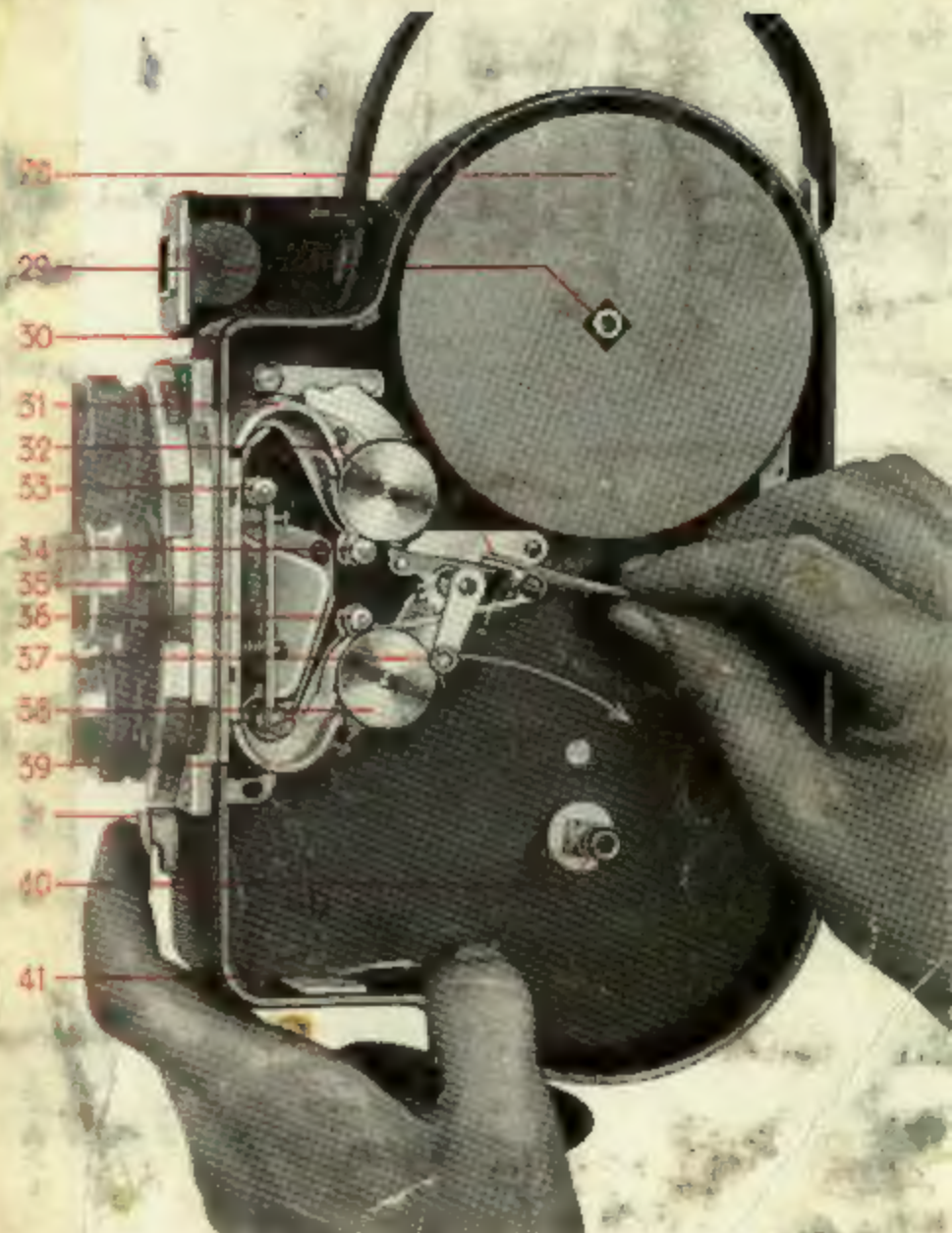


Fig. 7

3. Never work the apparatus at a speed higher than 32 pictures per second unless the camera is loaded, as there is a risk of injury to the mechanism.
4. Do not rewind the spring motor unless lever 12 is on "Motor".

CHAPTER I

Loading the Camera

Previous to loading :

- a. The starting button 22 must be placed on "Stop".
- b. Lever 12 must be clearly set on "Motor".
- c. The speed control must be placed on 16 pictures per second, i.e. the figure 16 must be opposite the red point.
- d. Rewind the motor to the full, either by means of rewinding handle 25 or of winding key 3. Rewind in the direction shown by the arrow in Fig. 1. Winding key 3 screws on to the thread covered by chromium-plated screw 20, which can be unscrewed by means of a coin.
- e. Remove the lid by means of button 43 (Fig. 8), giving a half-turn anti-clockwise (0 ←).
- f. Push down lever 37 into the position shown in Fig. 7, so as to close the loop guides.
- g. Make sure that the film guides 34 and 35 are pressed against the sprockets 32 and 38 and that pad 33 is pressed against gate 35.
- h. Place the spool of film on top spindle 29 so that the film will unwind in the direction of the arrow shown in Fig. 5 (clockwise).
- i. The film must not be cut to a point (Fig. 4) nor must it be crinkled. Hold the film between the thumb and the index finger of the right hand and pass it through knife 41 (see Fig. 5 and 7). With the index finger of the left hand press hard on blade 42, which will cut the end of the film to the

right shape for passage through the automatic loading device. Throw away the cut end of the film to prevent its passing through to the mechanism.

Film check for H8 cameras.

All H8 cameras for 8 mm double run film from Serial Number 15941 onwards are provided with a film check which presses against the coils of film on the feed and take-up spools, thus preventing them from unrolling during loading or at the end of a shooting. (Fig. 9).

Before setting the spools in position in the camera, open fully the two levers 45 and 46, placing them in position c.

Hold the full spool in such a way that the coils do not unroll and place it on its spindle 29, the notch at the center of the spool facing the red mark on the spindle. Once the spool is in place, regulate the position of lever 45 according to the capacity of the spool by slightly lifting knob 47. (7.5 m spool = position a ; 15 m spool = position b ; 30 m spool = position c.)

When loading is completed (see page 4) and the take-up spool in place, regulate film check lever 46 in the same way.

When unloading the camera, hold the take-up spool in such a way that the coils do not unroll, then open fully lever 46 (position c) before removing the spool. (See Chap. 2, last paragraph.)

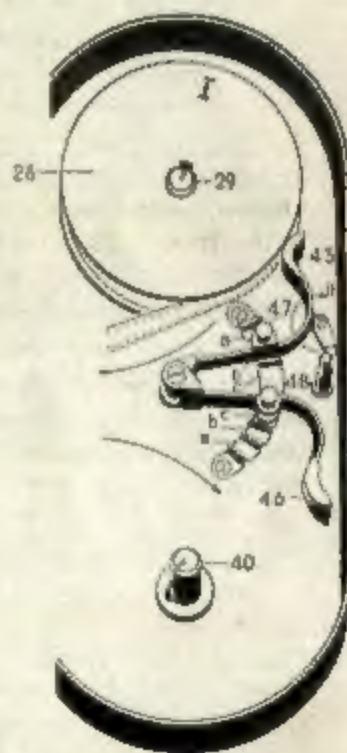


Fig. 9

Automatic loading :

- a. Introduce the film into the mechanism through opening 30 shown by arrow (Fig. 6 and 7).
- b. Press button 21 to set the motor in motion.
- c. Push the film fully through the opening until it reaches sprocket 32, which will transport it through loop guide 31. It will then pass through the gate and through loop guide 39 and emerge through sprocket 38.
- d. As soon as the film has passed through the lower sprocket 38, stop the mechanism by releasing pressure on button 21.
- e. Push up lever 37 so as to bring it back to the horizontal position (see Fig. 6). This will open the loop guides 31 and 39. Set the motor going once again until the end of the film emerging from sprocket 38 is of a length of about 8 to 10 inches.
- f. If the mechanism stops by itself before the film emerges from sprocket 38, release button 21, open the loop guides by means of lever 37 and set the mechanism in motion again until about 8 to 10 inches of film emerges from the sprocket.
- g. Insert the end of the film into the core slit of the take-up spool, wind the film around the core and place the film on lower spindle 40.
- h. Set the mechanism going for a second or two to make sure that the loops remain as made and that the film winds on to the lower take-up spool.
- i. Make sure that the loop guides are opened (lever 37 in horizontal position) and that the spools are properly placed on spindles 29 and 40.
- j. Replace the lid of the camera and lock this by turning button 43 in a clockwise direction (→F). If any difficulty is experienced in replacing the lid, do not force it, but

make sure that all parts of the film transport mechanism are in position, as in Fig. 6.

- k. In case of incorrect loading, remove the film, winding it back on to the top spool (see page 7), and reload more carefully. If need be, see page 8.
- l. To check up at any time whether any film is left in the gate, proceed as follows :
Move lever 17 to position "T" 18, switch round the turret so as to see the window of the gate and set lever 22 on "P" 23, thus moving the shutter out of the line of vision. It will then be seen whether the leader, film or trailer is still in the gate. If any unexposed film (yellow) is left in the gate, then only one picture will be logged.

CHAPTER II

Transport of the Film

Counter :

The counter 15 (in metres or feet) automatically returns to zero as soon as the lid of the camera is removed. It only functions once the lid is in position. The space on the scale between A and O corresponds to the passage of a length of approximately 4 ft. of leader. It is provided for the passage of the film or leader which is fogged during the loading. Once the lid has been closed, set the mechanism in motion until the figure O appears opposite the line on the counter. If the film used is without leader or if the camera has been loaded in a dark room so as to avoid any possibility of fogging, "shooting" may be started immediately.

The counter, which is worked by the film transport mechanism, adds when the film is being taken up by the lower spool and subtracts when the film is being returned to the top spool. The counter registers the amount of film exposed to within 4 inches. The passage through the gate of each 25



Fig. 10

centimetres (approx. 10 inches) of film is recorded by a slight clicking sound. It is therefore possible to estimate the length of a scene without removing one's eye from the viewfinder. A normal scene (portrait etc.) generally measures from one to two metres of film ($3\frac{1}{2}$ to 7 ft.), corresponding to 4-8 clicks of the counter.

To soften the sound of the audible footage indicator, or to put it out of action, set on \square ($\rightarrow 0$) the small lever 49 located inside the camera (Fig. 10).

Speeds :

Button 19 enables the speed to be altered, even while the mechanism is in action, from 8 to 64 pictures per second. **Never work the mechanism at a higher speed than 32 pictures per second unless the camera is loaded, as this is injurious to the mechanism.**

The normal speed of motion pictures is 16 pictures per second, that is to say, the normal speed of projection of silent films.

A film "shot" at a speed lower than 16 pictures per second will give on the screen an impression of accelerated movement. A film "shot" at a speed higher than 16 pictures per second will give a slow-motion effect.

Bear in mind that in altering the speed \square is also necessary to alter the exposure, so that one must regulate the diaphragm of the lens in consequence (see page 13).

Starting the mechanism :

The mechanism is set in motion by pressing sharply on button 21 : as soon as pressure on this button is released, the mechanism will stop. This is the normal starting button.

To film without being compelled to remain near the apparatus — for instance, to film oneself — move the lateral button 22

on to M. To stop the mechanism, move the same button on to "Stop".

Single Exposure Device :

To make a single exposure, move button 22 to P.

Time exposures are made by pushing down lever 17 to position T and then setting button 22 on P. The shutter will remain open as long as button 22 is kept on P.

To obtain instantaneous exposures, move lever 17 to position I before setting button 22 on P. For instantaneous exposures, see page 15.

The antinuous release is an accessory available on request. It allows the mechanism to be set in motion without jerking or unsteadiness, whether moving pictures or single exposures are being made.

Handcranking :

To disengage the spring of the motor, whether fully wound or not, bring down lever 12 to 0 (13). In case of resistance being felt before lever 12 can be brought right down, move button 22 towards M. This will ease the operation. The transport mechanism of the film is thus made independent of the clockwork motor and may be worked by other means. To handcrank, introduce the handle provided into socket 14 and set button 22 on M. To wind the film backwards, turn the handle in the direction of the arrow. To handcrank forwards, turn the handle the other way. The speed regulator also acts as a brake when the mechanism is worked by hand, so that one should try not to handcrank faster than the speed for which button 19 has been set.

When being wound backwards, the film is automatically taken up by delivery spool 28. It is therefore possible to wind back any length of film. When the film is wound back, the counter subtracts. Axis 14 may also be operated by some other means than handcranking — for instance, by a special electric motor.

Never rewind the motor by means of the handle or the winding key whilst the motor is disengaged.

To re-engage the spring motor, move button 22 on to "Stop", detach the cranking handle and bring lever 12 on to "Motor".

Unloading the Camera

At the end of a film :

As soon as a reel has been exposed, which can be ascertained by means of the counter, allow the mechanism to work for a little while to make quite sure that the trailer has passed through. This can be checked at all times as directed on page 51. Get ready the metal container in which the reel of film was supplied. Open the camera, preferably in a shady corner, and replace the reel of film immediately in the metal container, which in its turn should be put into the cardboard box ready to be sent for processing.

Before the complete reel has passed through :

Push down lever 17 to T. Remove the lid, either in a shady corner or, if possible, in total darkness. The loop guides 31 and 39 are already open. Open film guide 34 by slightly lifting the knob which holds it in position and remove the film from sprocket 32. Close film guide 34. Open film guide 36 by slightly lifting the knob as with guide 34, and open pad 33 in the same way. Now move button 22 on to P so that the claw is withdrawn from the gate, and while holding it in this position remove the film from the latter and from sprocket 38.

Close film guide 36 and pad 33. Close the loop guides for the next automatic loading.

Safety locking device :

To prevent the mechanism from starting and ruining the film when the camera is loaded, either by accident or on account of careless handling, move lever 12 to the position "0". This

should be done whenever the camera is not in use or is handed over to someone for safe keeping.

Special note on 8 mm films double run (model H 8 camera) :

When 8 mm double run film has been passed through the camera once, it has only been exposed on one side. To expose the other side, turn round the spools and reload as instructed in Chapter I.

The white figures I and II on Paillard spools supplied with the apparatus will serve as a reminder as to whether the film has been exposed on one or both sides.

CHAPTER III

Lenses

Interchangeability of lenses :

The Paillard model B camera is made to take interchangeable lenses, the mounts of which are provided with an international standard thread. Model H 16 takes standard 1-inch thread (25.4 mm, setting 17.52 mm), while model H 8 takes the small standard 5/8-inch (15.8 mm, setting 12.29 mm). Thus it is always possible to complete the optical equipment by the purchase of new lenses of varying focus and power and of any make.

Each lens supplied with the camera must be accompanied by a certificate from E. Paillard & Cie. S. A., bearing the numbers of the lens and of the apparatus and guaranteeing accurate focussing. When lenses are purchased after the camera has been bought, it is recommended that such lenses be sent with the camera to Paillard Works or to their accredited representatives, and a new certificate in respect of the proper fitting of such lenses should be insisted upon.

The lenses must be screwed securely into the lens openings, but must not be forced.

Turret :

The turret of model H can accommodate three lenses, the focal lengths of which may vary from $F = 15$ mm (12.5 mm in the case of H 8) to $F = 150$ mm and more.

To move a lens into taking position, turn the turret round on its axis. Spring sockets mark the respective positions of the three lenses.

Diaphragm and focussing see pages 12 and 13.

Viewfinder :

The model H camera is normally supplied with a trifocal viewfinder 7 permitting of strict correction of the parallax.

The viewfinder may be placed in two different positions :

The viewfinder 7 may occupy two different positions on the camera. Position 1 shown in Fig. 2 is especially suitable for the transport of the camera in its case. In this position the viewfinder will give accurate centering for all views at a distance of six feet or more from the lens. Position 2 shown in Figs. 3 and 8 permits of highly accurate centering down to a distance of 20 inches from the lens.

To change the position of the viewfinder, turn the milled ring 8 until the two red points are opposite each other. Then pull the viewfinder backwards and it will slide out of clamps 10 and 11. To place the viewfinder in position, see that levers 6 and 9 are on the outside, turn round the milled ring until the red point is opposite the corresponding red point on the finder and slide the finder into position on the side of the lid. Once it is in position, turn milled ring 8 in the direction of the arrow shown in Figs. 2 or 3.

Parallax corrector :

For dead accurate centering, fix the viewfinder in position 2 on the side of the lid, Figs. 3 or 8. In this position there

is no vertical parallax and the slight lateral parallax will be corrected by the sliding of eyepiece 26 of viewfinder by means of the knurled screw 27. The scale given above eyepiece 26 corresponds to the distances between subject and lens. Always return the scale to ∞ after using the camera.

Using the viewfinder with lenses of various focal lengths :

When levers 6 and 9 on the viewfinder are placed horizontally, the viewfinder is ready for use with the standard focal length lens supplied with the camera. This focal length is engraved on the optical section (5) of the viewfinder. By raising or lowering levers 6 and 9 the finder is adjusted for use with one or other of the lenses of different focal length on the turret. The corresponding focal length is engraved on the lever.

The optical section 5 of the viewfinder is interchangeable. It is composed of the lenses and the levers, so that when a further set of lenses is bought a new set can also be bought for the viewfinder to correspond with them. Certain combinations of widely varying focal lengths, however, are not possible on the same finder.

CHAPTER IV

How to Film — General Rules

A. Speed :

Regulate the speed, remembering that the normal speed for projection is 16 pictures per second.

B. Viewfinder-Parallax :

If the viewfinder is used in position 2, that is, fixed to the side of the lid of the camera, correct the parallax according to the distance between the lens and the subject so as to obtain dead accurate centering.

C. Varying focal length of lenses :

Make sure that the viewfinder is regulated for use with the taking lens on the turret.

D. Focussing :

With the exception of fixed focus lenses, all lenses supplied with the model H camera are fitted with a focussing ring. This permits them to be regulated to the distance between the subject and the lens, thus making for pin-point definition. The nearer the subject to the lens, the greater must be the care taken to ensure accurate focussing. More care in focussing is also demanded by large aperture lenses, particularly when it is necessary to use a large stop.

In case of doubt in the estimation of distance, it is best to err on the long side. When the subject is moving towards the camera it is advisable as a general rule to focus for the nearest spot to which it will approach. On most lenses, the scale engraved corresponds to a distance measured from the plane of the film to the subject. It should be remembered that the plane of the film in Model H 16 is 17.52 mm, and in Model B 12.29 mm, from the plane of the turret against which the lens fits when the latter is screwed home in position. Make sure that the focussed lens is in the taking position on the turret, i.e. opposite the opening in the gate.

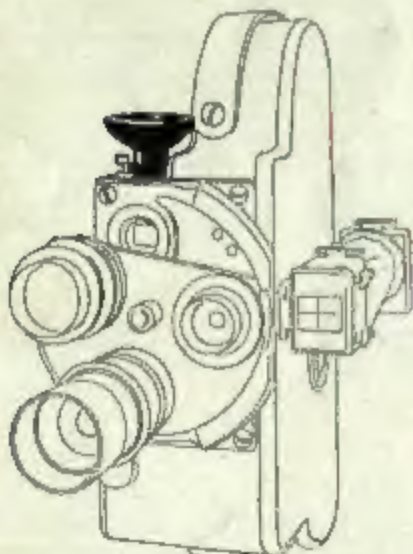


Fig. 11

E. Instructions for the Use of the Critical Visual Focuser :

A prism covering a large part of the subject is fitted inside the camera opposite the upper lens opening of the turret. The prism is protected from outside dust by a flat-headed screw which can be removed when it is desired to use the prismatic focussing device. The viewfinder must be removed and placed in position 2 on the side of the lid (Fig. 8). This allows the eyepiece to be fixed on the upper part of the prism. Center the subject through the viewfinder. Rotate the turret so that the lens it is wished to focus is in front of the prism. Open out fully the iris diaphragm of the lens. Focus by means of the focussing mount on the lens until the subject, seen through the magnifying glass, is quite sharp.

Rotate the turret so that the lens thus focussed is brought into the taking position, being careful not to disturb the setting. Set the iris diaphragm to correspond with the required exposure and once again check the centering through the viewfinder.

F. Diaphragms :

Regulate the opening of the diaphragm of the lens according to:

1. The amount of light on the subject.
2. The speed at which the speed regulator has been set.
3. The H and B speed of the film.

The special Paillard-Bolex table shows the opening of the diaphragm for most usual subjects. Consult this table often until you have memorised the information given. The closing of the diaphragm to the extent of one of the gradations marked on the scale diminishes by half the amount of light allowed to pass through the lens. The opening of the diaphragm by one gradation doubles the amount of light, opening by two gradations quadruples it, and so on.

Moreover, when the film is run at 8 pictures per second, the exposure is doubled. The normal exposure is 1/30 at 16

pictures per second. When the film is run at 64 pictures per second, the exposure is thus reduced to a quarter of the normal, i.e. to 1/120 sec.

G. Exposure meter

The use of a **good quality** exposure meter is recommended as a help towards the avoidance of irregularities in exposure.

H. Steadiness :

Hold the camera **very steady**. Whenever possible use a stand or some other support. A stand is necessary when filming with a lens of a higher focal length than 50 mm (2").

The base 4 of the camera is provided with a universal screw fitting for a stand. For use with Kodak thread a special bush can be supplied.

I. Panoramimg :

Panoram very slowly. Allow the subject to move within the field of the lens, otherwise follow the subject very slowly.

J. Rewinding :

Rewind the spring of the motor after every scene.

K. Varying light intensity on subjects :

As far as possible avoid filming too many dark and light subjects one after the other.

L. Breakdowns :

In case of jamming, do not force any part of the mechanism. Endeavour to rectify the trouble in a dark room or a shady corner so as to avoid fogging too much film.

CHAPTER V

How to Film — Various Possibilities

1. Color films :

All makes of color film can be used on model H cameras. The steady running speed of the apparatus from the first frame of each scene ensures excellent results even with color emulsions which are particularly sensitive to the slightest difference in time of exposure.

Follow the directions contained in the cartons issued by the film manufacturers.

2. Indoor subjects with or without artificial lighting :

If a large aperture and high-speed film are used, indoor films may be taken with the Model H camera ; very good results are also obtained by means of artificial lighting. To ascertain the diaphragm at which to set the lens, consult an exposure table or use an exposure meter.

3. Titling :

The model H camera lends itself admirably to the taking of titles as it incorporates all necessary features, i.e. focussing of the lens, dead accurate centering of the view-finder down to 20", taking speed of 8 pictures per second in case of poor lighting, handcranking or working of the mechanism by means of an electric motor, reverse mechanism.

4. Illusion of Movement :

Thanks to the single exposure device, it is possible to create an illusion of movement in subjects which the eye is accus-

tomed to see at a standstill. In this way the growth of a plant, animated drawings or titles, etc. may be brought on to the screen, and the effect of movement be obtained in any subject by changing its position after each single exposure.

Needless to say, the illumination used from one exposure to another must remain the same or else the diaphragm of the lens must be regulated accordingly. Above all, the camera must be held steady.

The speed of instantaneous exposures can be regulated by means of button 19. According to the position of the button from 8 to 64 pictures per second, a range of exposures from $1/20$ to $1/80$ of a second can be obtained. For an instantaneous exposure equal to the exposure of film run at 16 pictures per second the speed regulating button 19 should be set on 24 pictures per second.

5. Portrait attachments, color filters, vignettes :

To film subjects at smaller distances from the lens than any provided on the scale, a portrait attachment should be fitted in front of the lens. These attachments are obtainable for most lenses. Special attachments can also be obtained for trick work in which distorted pictures and other comic effects are required.

Color filters are further accessories which are obtainable for most lenses, their effect being the filtering of light rays in order to bring certain parts of the subject (clouds, half tones, contrasts, distant object, etc.) into relief. When purchasing a color filter, inquire its coefficient, so as to be able to set the diaphragm of the lens accordingly, always bearing in mind the H and D speed of the film you are using.

A number of vignettes are available for use on the model H camera. See special notice concerning the types that are available and their use.

6. Ordinary fades, super-impositions, lap dissolves.

A fade consists in the introduction or closing of a scene by means of a progressive appearance or disappearance of the subject, which is often more pleasing to witness on the screen than an abrupt change of scene. In a "fade-in" the screen at first appears dark, and the picture then slowly becomes clearer until it is normal. In the "fade-out" the picture disappears gradually on the screen. (These effects are obtained by under-exposure, the amount of light allowed to pass through the lens being slowly changed).

To obtain either form of fading, use may be made of the iris diaphragm of the lens, which will be opened or closed within a second or two of the start or end of a scene. It is preferable, however, to use an accessory known as a "totally closing iris diaphragm", obtainable for most lenses of the Model H camera. This iris can be attached to the front of the lens to form a supplementary diaphragm ; it is manipulated by means of a loose lever and permits of the progressive closing down of the diaphragm until complete darkness is obtained.

The unlimited reverse action of the model H camera permits double exposures to be made over any footage of the film, for the purpose of obtaining super-impositions. When winding the film back on to the top spool for double exposures do not forget to cover the "taking" lens to prevent the light passing through whilst the film is being brought back. Make a note of the reading of the footage indicator so that you can wind back the exact number of feet required for double exposure.

Lap dissolves consist in "fading-out" and "fading-in" by means of super-impositions on the appearing or disappearing scenes. To make a lap dissolve, terminate the first scene as a "fade-out", making a careful note of the footage used for such a fade or timing it with a stop-watch. Then rewind precisely the same footage of film on to the top spool (taking care to cover the lens whilst doing so) ; film the next scene as a "fade-in" using precisely the same footage. One may

also obtain fades by other means, such as the use of masks, opaque screens, etc. Fades obtained by means of the alteration of focus are also of interest, and it is possible to end a scene by throwing the subject out of focus or to start one out of focus and bring it up to normal.

7. Other tricks :

For other effects which can be obtained with the model H camera, read the Information contained in books specially dealing with trick work.

CHAPTER VI

Upkeep

Keep the model H camera free from dust and damp. The exterior of the lenses must be cleaned from time to time with very fine tissue paper or a soft and dry cloth, and should be rubbed very gently so as to avoid scratching.

The inside of the apparatus must be kept very clean. Slight deposits of dust or emulsion may form on the gate or on the pressure pad during the passage of the film. These, and the window in particular, should be carefully cleaned by means of a clean cloth wound around the end of a pencil. If the emulsion deposit has hardened, damp the cloth slightly and wipe with a dry cloth.

Oiling :

The mechanism of the model H camera may be compared to that of a high quality watch, which very seldom requires oiling.

A reserve of grease and oil contained in the mechanism of the camera on delivery is sufficient to maintain the apparatus in good condition for two or three years of normal use. At the end of this period it is recommended that the camera be entrusted to the supplier for general overhaul. If the owner wishes to oil the camera himself, he should proceed as follows : allow a drop of fine non-freezing chronometer oil, entirely free from acid, to fall on all visible axes of the mechanism. Allow one or two drops to fall on the cam of the claw, which may be seen from the opening which allows the claw to pass. Then set the unloaded mechanism in motion for a moment or two and carefully wipe away all excess oil. Never attempt to dismantle the mechanism of the model H camera. Non-observance of this rule nullifies any guarantee in respect of the smooth working of the apparatus.

Number of the Camera :

When corresponding with your supplier on the subject of this camera, please mention the number of the apparatus. This number appears on the casting near the top spool spindle (seen when lid is removed) and underneath the turret (seen when the turret is switched round).